

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/256,346

REMARKS

Reconsideration and allowance of all claims are respectfully requested. By this Amendment, Applicant has added new claims 16-19. Thus, claims 1-19 are now pending in the application. In response to the Office Action (Paper No. 9), Applicant respectfully submits that the pending claims define patentable subject matter. By this Amendment, Applicant has amended claims 1, 10 and 11 to improve clarity.

Claims 1, 8, 10 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. (USP 4,800,382) in view of Bonnett et al. (USP 6,075,506). Claims 2-5 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. in view of Bonnett et al. and Kurematsu (USP 5,796,380). Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. in view of Bonnett et al., Kurematsu and Kamiya et al. (USP 4,694,348). Claims 6, 7, 9 and 12-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. in view of Bonnett et al. and Kamiya et al.

Applicant respectfully submits that it is quite clear that the combined references do not teach or suggest scanning successively the scan lines in a second field of a frame for display in an order reverse to that in the first field, as recited in claim 1. The Examiner maintains that Okada et al. (Okada) discloses all of the features of independent claim 1 except that the scan lines are successively scanned in a second field in an order reverse to that in the first field, which the Examiner asserts is disclosed by Bonnett et al. (Bonnett). However, Bonnett (Fig. 2a) only discloses that in a first frame, rows of pixels are consecutively refreshed by applying a negative blanking pulse (black state) followed by a positive blanking pulse (white state) to each row of pixels, and in a second frame, the rows of pixels are consecutively refreshed in the same order as

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the first frame by applying a positive blanking pulse (white state) followed by a negative blanking pulse (black state) to each row of pixels. Accordingly, Applicant respectfully submits that independent claim 1, as well as dependent claims 2-9, should be allowable because the combined references, do not teach or suggest all of the features of the claims.

Independent claim 10 recites a method for driving a liquid crystal display element in a frame composed of a first field and a second field comprising the steps of (a) writing data a plurality of times in the first field by use of a predetermined signal voltage; and (b) writing data a plurality of times in the second field by use of a signal voltage whose polarity is opposite to that of the predetermined signal voltage. The method of claim 10 is illustrated in Figure 24 of the present application. Although the Examiner does not appear to specifically address the subject matter of independent claim 10 in support of the rejection, Applicant respectfully submits that it quite clear that neither Okada or Bonnett teaches or suggests writing data a plurality of times in See Kamiya first field of the frame and writing data a plurality of times of a second field of the frame for a co 1 5 single display element (i.e., scan line). Rather, Okada discloses writing once in black (i.e., a positive pulse) then writing once in white (i.e., a negative pulse) during one frame and Bonnett discloses writing once in black (or white) then writing once in white (or black). Similarly, Kurematsu and Kamiya et al. fail to teach or suggest the subject matter of claim 10.

Independent claim 11, recites a method for driving a liquid crystal display element comprising writing data a plurality of times in a frame by use of a signal voltage whose polarity becomes alternately positive and negative during the frame at a predetermined frequency. The method of claim 11 is illustrated in Figure 26 of the present application. Although the Examiner

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does not appear to specifically address the subject matter of independent claim 11 in support of the rejection, Applicant respectfully submits that it quite clear that neither Okada or Bonnett teaches or suggests writing data for a single display element (i.e., scan line) a plurality of times when the polarity of the signal voltage is positive and a plurality of times when the polarity of the signal voltage is negative during a single frame, as recited in claim 11. Rather, Okada discloses writing once in black (i.e., a positive pulse) then writing once in white (i.e., a negative pulse) during one frame and Bonnett discloses writing once in black (or white) then writing once in white (or black). Similarly, Kurematsu and Kamiya et al. fail to teach or suggest the subject matter of claim 11.

Kurematsu
Okada

Accordingly, Applicant respectfully submits that independent claims 10 and 11, as well as dependent claims 12-15, should be allowable because the applied references do not teach or suggest all of the features of the claims.

By this Amendment, Applicant has added new claims 16-19 corresponding to the second through fifth embodiments of the present invention. Applicant respectfully submits these claims should be allowable for substantially the same reasons as independent claim 1.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

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Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) A method for driving a liquid crystal display apparatus comprising the steps of:

scanning successively a plurality of scan lines in a first field of a frame for display [and]; simultaneously resetting the scan lines in [each] the first field[, the improvement wherein the scan lines are simultaneously reset] after the scan lines are successively scanned in [a] the first field[,];

scanning successively the scan lines in a second field of the frame for display in an order reverse to that in the first field; and

simultaneously resetting the scan lines [are simultaneously reset] in the second field after the scan lines are successively scanned in [a] the second field [in an order reverse to that in the first field].

10. (Amended) A method for driving a liquid crystal display element forming a scan line in [each] a frame composed of a first field and a second field, the method comprising the steps of[;]:

writing data a plurality of times in the scan line in the first field by use of a predetermined signal voltage; and

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writing data a plurality of times in the scan line in the second field by use of a signal voltage [whose] having a polarity which is opposite to [that] a polarity of the predetermined signal voltage.

11. (Amended) A method for driving a liquid crystal display element forming a scan line, the method comprising writing data a plurality of times in [each] a frame by use of a signal voltage [whose] having a polarity which becomes alternately positive and negative during the frame at a predetermined frequency, wherein the data is written a plurality of times when the polarity of the signal voltage is positive and a plurality of times when the polarity of the signal voltage is negative.

Claims 16-19 are added as new claims.